

REMARKS

Reconsideration and allowance are respectfully requested.

I. Status of the Claims

Claims 1-32 are pending in the application.

Claims 1 and 31 have been amended.

Claims 1-3 and 31 have been examined.

The amendments do not add new matter. Support for “skeletalized structure is about 100 to about 400 angstroms in diameter” is found in the Specification, e.g. page 9, lines 6-9. Support for “openings are about 100 to about 200 angstroms in diameter” is found in the Specification, e.g. page 9, lines 8-10 reciting “ultra fine pores.” The terms openings and pores connote a circular structure and a circle is typically dimensioned according to its diameter. Support for “the density of said skeletalized structure is about 50 to about 70 skeletalized structures per 200 nanometers square of said surface” is inherent in the definition of density. The skeletalized structure is defined as included as part of the glass surface and having a density in relation to that surface. *See*, Specification, e.g., page 3, lines 11-14

II. Status of the Specification

The Specification has been objected to for informal matters and has been amended to correct the informality noted by the Examiner. Additionally, the Specification has been amended to specifically recite the particular dimensions of the claimed structure and to conform

with the claims. The amendments are supported by the same disclosure as the claims. Applicants request withdrawal of the objection.

III. Status of the Drawings

The Drawings have been objected to for not reciting "Prior Art". Applicants submit herewith Proposed Drawing Corrections, correcting the oversight noted by the Examiner. Specifically, the Applicants respectfully states that the drawings have been amended to clearly identify Figure 1-13 as "Prior Art". Applicants respectfully request the above objection be withdrawn.

IV. Response to Restriction Requirement

The Examiner has required restriction of one of the following inventions is required under 35 U.S.C. § 121.

Group I: Claims 1-4 and 31, drawn to a glass product, classified in class 428,
 subclass 410; or

Group II Claims 5-30 and 32, drawn to a method for producing a low reflectance,
 high clarity glass, classified in class 427, subclass 169.

In response, Applicants affirm the election of Group I, claims 1-4 and 31, which are drawn to a glass product, classified in class 428, subclass 410. The election is made without traverse.

Further, the Examiner has requested restriction among the following species of

Group I:

Species 1: Claim 3

Species 2: Claim 4

and the Examiner has identified claim 1 as generic.

Applicants affirm the election of Species 1, claim 3 with traverse. Inasmuch as if the Examiner maintains that claim 1 is generic, and it is believed that these claims are allowable; the election of a species requirement is traversed and should be withdrawn.

V. Rejections Under 35 U.S.C. §112

Claims 1-3 and 31 stand rejected under 35 U.S.C. § 112, second paragraph. The Examiner states that certain dimensions were not provided and reference terms. Applicants have amended the claims to recite the proper dimensions for the terms noted by the Examiner and reference the density of the particular term. The amendments to the claims render the claims definite and Applicants request the above rejection be withdrawn.

VI. Rejections Under 35 U.S.C. § 102

Claims 1-3 and 31 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,944,986 to Zuel (hereinafter the "'986 patent"). Claims 1-3 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,120,605 to Zuel et al. (hereinafter the "'605 patent"). The Examiner states that both the '986 and the '605 patents

disclose openings of about 100 to about 200 angstroms in diameter. The Examiner admits that both the '986 and the '605 patents do not disclose a density of the skeletized structure or the dimension of the skeletized structure of about 100 to about 400 angstroms in diameter but contends that the method disclosed by the '986 and the '605 patents is substantially identical to the method of the present invention. Thus, the Examiner states that the skeletized structure of the '986 and the '605 patents are inherently substantially identical to the skeletized structure as claimed.

Applicants respectfully traverse the above rejection. The size and density of the skeletized structure are some of the novelty of the present invention. The surface structure claimed, the "skeletized silica structure [being] about 100 to about 400 angstroms in diameter [and a density of] about 50 to about 70 skeletized structures per 200 nanometers square of said surface", enhances the cleanability and color of the glass product. The structure of the presently claimed invention keeps grease at the surface, allowing a mild glass cleaner (approximately 3% active ingredient, e.g. WINDEX) to remove the grease from the glass surface. Prior art glass, as disclosed in the '986 and the '605 patents, tends to trap grease in the openings and require high strength cleaners (approximately 65% active ingredient).

The method and composition used to produce the glass product as disclosed in U.S. Patent No. 4,944,986 to Zuel (hereinafter the "'986 patent" and U.S. Patent No. 5,120,605 to Zuel et al. (hereinafter the "'605 patent") differs from the method and composition of the present invention and cannot form the glass product as presently claimed. The method and composition used to form the glass product of the '986 and '605 patents results in a skeletized structure that has larger openings (1.5 to 6 times larger than the openings claimed) and approximately half the

density of the skeletized structure as claimed. The difference in structure is apparent from the color of the glass of the claimed invention as opposed to the prior art. The presently claimed glass is “a purplish-brown to brown color (when viewed in daylight).” Specification, page 9, lines 27-28. Both the ‘986 and the ‘605 patents disclose glass having “a purplish-blue to blue color (when viewed in daylight).” ‘986 patent, column 6, lines 53-54 and ‘605 patent, column 6, lines 26-27. The surface structure of the glass product determines the color of the glass. *See*, Specification, page 9, line 22 to page 10, line 5, ‘986 patent, column 6, lines 43-62, and ‘605 patent, column 6, lines 15-35. Thus, the method of the prior art references cannot form the structure of the present invention.

Additionally, the etching method that forms the claimed structure is controlled by the potency of the etching solution. Potency relates to the degree of reactivity of the fluosilicic acid toward the glass. Potency is fine tuned by the addition of dilute boric acid (e.g. 4%). The method of the present invention discloses a potency of -8 units and -18 units. Specification, page 11, Table 2. The ‘986 and the ‘605 patents disclose a potency of -6 units and -16 units. ‘986 patent, column 7, Table 2 and the ‘605 patent, column 7, Table 2. The surface structure of the present invention can only be formed in a range of 1/8 of a potency unit, which is very difficult to obtain. Also, the potency of the present invention is two units more negative than the prior art.

Thus, the physical properties (i.e. size and density) are significant features of the claimed invention that are not present or inherent in the ‘986 and the ‘605 patents. The physical properties of the glass are changed from the prior art due to the change in the skeletized structure as claimed. Thus, the claims, as amended, recite over the references.


CONCLUSION

Therefore, in view of the above amendments and remarks, it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case passed to issue.

If there are any other issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

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Respectfully submitted,

By 

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(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Juei-Hua Lin

Application No.: 10/091,710

Group Art Unit: 1775

Filed: March 5, 2002

Examiner: Andrew T. PIZIALI

Confirmation No.: 7465

For: **ANTI-REFLECTIVE GLASS SURFACE
WITH IMPROVED CLEANABILITY**

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EXAMINED CLAIMS AS OF MAY 27, 2003

Claim 1. (First Amended) A glass product comprising an alkali or alkali earth metal silicate glass, said glass product having high optical clarity and comprising at least one surface comprising:

a plurality of islands extending across said surface of said glass at a density of about 60 to about 10,000 islands per square millimeter and each island being between about 10 to about 200 micrometers in diameter and said islands extending across said entire surface of said glass in such a distribution that said islands contribute to providing decreased reflectance of incident light across said surface of said glass;

a skeletized silica structure having openings and extending uniformly over the surface of the glass, including the islands, said skeletized structure is about 100 to about 400 angstroms in diameter

said openings are about 100 to about 200 angstroms in diameter and uniformly distributed throughout the surface of the glass,

wherein the density of said skeletized structure is about 50 to about 70 skeletized structures per 200 nanometers square of said surface; and

the product having low reflectance of incident light.

Claim 2. The glass of claim 1, wherein said islands are disposed on said glass surface at a density of about 250 to about 600 islands per square millimeter of said glass surface.

Claim 3. The glass of claim 1, wherein said product comprises a plane sheet.

31. (First Amended) A glass product comprising an alkali or alkali earth metal silicate glass, said glass product having high optical clarity and comprising at least one surface comprising:

a plurality of islands extending across said surface of said glass, each island being between about 10 to about 200 micrometers in diameter; and

said islands extending across said entire surface of said glass in such a distribution that said islands contribute to providing decreased reflectance of incident light across said surface of said glass,

a skeletized silica structure having openings and extending uniformly over the surface of said glass, including said islands, said skeletized structure is about 100 to about 400 angstroms in diameter

said openings are about 100 to about 200 angstroms in diameter and uniformly distributed throughout; and

said product having low reflectance of incident light.